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Vermilion: *matière* and what matters in Cézanne's paintings

The impression created by the Impressionists is that ... a monkey has laid its hands on a box of colors.' (Albert Wolff)¹

Only I have temperament, only I know how to paint a red!
(Cézanne)²

In November 1866 the painter and poet, Anthony Valabrègue, wrote to Emile Zola to inform him of the most recent excesses of their mutual friend, Paul Cézanne. Only half in jest, he recounted how:

Paul had me sit for a study of a bust. Flaming red flesh with scrapings of white: it's the painting of a mason. I am so strongly coloured in it that it reminds me of the statue of the curé in Champfleury, when it was coated with crushed blackberries.³

The statue in question, from Champfleury's story, 'L'étang de Beaurevoir', was in fact smeared with the juice of strawberries and gooseberries.⁴ Valabrègue's mistaken recollection nevertheless does justice to the colour Cézanne described when, in a conversation reported by Ambroise Vollard, he told Antoine Guillemet that 'the highlight on the nose' in the portrait **[fig.1]** was 'pure vermilion.'⁵ In the same conversation, Cézanne apparently vaunted his 'temperament', and boasted of the 'ballsy [*couillarde*] painting' it allowed him to make. It would seem, then, that the artist believed that vermilion signified a powerfully masculine creativity of the kind Stendhal described his *Histoire de la peinture en Italie* of 1817, when he argued that 'the stimulating effects of bile coincide with those of seminal fluid' to produce 'violent sensations' in the painter of a 'bilious temperament'.⁶ The situation is probably less straightforward, however, since Cézanne told Zola in a letter November 1878 that he did not read this text until 1869.⁷

The meanings accrued and produced by Cézanne's use of vermilion are further complicated by his admiration for the cult novel, *Manette Salomon* of 1867 by Edmond and Jules de Goncourt. In this the painter and protagonist, Naz Coriolis, whose own name plays on the word, *coloris*, names his pet monkey Vermillon for aping his own 'colourist' temperament by chewing bladders containing 'minium'.⁸ Coriolis's tendencies are consistent with the fact that he has a 'feminine basis to his temperament', colour being considered 'feminine' in contemporary academic theory.⁹ So, although he uses a 'stormy, bloody red' in one painting in an attempt to express the anger he feels towards his mistress, Manette, for domesticating him and sapping his artistic talent, his 'feminine temperament' really inclines him to submit to the 'soft, happy servitude' of 'concubinage'.¹⁰ Implicitly, therefore, within the ideological scheme of *Manette Salomon*, Coriolis's eventual failure as a painter is attributed to his inability either to control the influence of his mistress's, or of his own, femininity.

The meaning of vermilion in Cézanne's work is directly connected with temperament in another novel, *La Proie et l'ombre*, by his erstwhile school friend, Marius Roux, which was published in 1878 after being serialised between September and October 1876 in *Le Gaulois*.¹¹ Many aspects of the novel's protagonist, Germain Rambert, were lifted from Coriolis, as when Germain likens his relationship to his mistress, Caroline, to that of the enslaved Hercules to Omphale.¹² But others were closely modelled on the extravagant and volatile Cézanne whom Roux knew in the 1860s and early 1870s.¹³ Vermilion features prominently in the novel in a painting of the model, Sarah, 'enthroned ... in front of a red and gold drape ... wrapped in a red satin dress pinned with gold', which begins life as 'a veritable glut of yellow and vermilion'.¹⁴ The reader is also informed that Germain 'painted as he saw' because of his 'temperament', so that when 'the yellow and red décor of the studio hit his eye, he saw only yellow ... and red'.¹⁵ The vermilion in his painting was thus implicitly masculine. Rather as with Coriolis, however, Germain is ultimately unable to bring any of his works to a successful conclusion because, despite his bravado, he is victim to his own native 'impotence'.¹⁶

While both novels can be taken to suggest that only a painter of a genuinely masculine temperament is capable of producing successfully, there is a second storyline in both novels, the moral of which is that the artist who cannot transform his inert materials into a living

medium is incapable of giving shape to his sensations. The issue here turns on the distinction between a living 'medium', which is what paint becomes when it is used purposively by the painter, and an inert 'material', which is what it remains when it is not.¹⁷ Extrapolating from ideas Merleau-Ponty developed, it might be said that the painter comes to treat the paintbrush almost as an extension of his own body, and when he does so can find the paint responsive to his way of applying it.¹⁸ In this scheme, therefore, the shift from Cézanne's earlier manner, when he had not made vermilion into his medium, to his mature style, when he had, amounts to a sea-change in his relationship with the pigment.

This is not to suggest that the early Cézanne only related to his paints as materials, nor that the mature Cézanne eschewed their materiality. Rather, it is to propose, in the first place, that Cézanne's early work only partially succeeded in converting paint into a medium. The positive dimension of this achievement had two aspects: first, he used paint to produce a purely virtual or immaterial chiaroscuro capable of modelling form in a basic fashion; and secondly, he employed a 'brushwork' whose physical or material character created shape with a 'rough swirling contour' of the kind Karl Madsen discerned in the lost nude Cézanne submitted to the Salon of 1870, and which the caricaturist, Stock, represented in a *portrait-charge* [fig. 2] of Cézanne, down to the 'dull vermilion' cloth draped over her.¹⁹ At the same time, however, Cézanne employed *matière* gratuitously, or with a 'violent energy' which Madsen believed was designed 'to give the impression of the greatness and force of a master hand'. It is this use of paint, then, that Cézanne abandoned as he matured. So, while he continued to employ *matière* meaningfully, not least by applying brushstrokes piecemeal to evoke the act of touching objects, he no longer used it rhetorically, or merely for effect.²⁰ And instead of using paint to create chiaroscuro, he came increasingly to use it as the material substrate of an immaterial colour harmony in the painting capable of creating a cohesive virtual image. Cézanne thus eventually learned to make vermilion, and his other colours, considered both as materials and as qualia, into his medium.²¹

Taking all this together, it seems likely that an awareness of the necessity of avoiding the catastrophe that befell Germain and Coriolis played some part in Cézanne's evolution. Arguably, moreover, this awareness was informed by an appreciation of how understanding the medium and understanding his own temperament were coextensive. It seems

reasonable, at all events, to suggest that Cézanne abandoned his unsuccessful attempt to impose his masculine temperament on his paint, because he realised that he could only make paint do what he wanted by engaging with it in a fashion appropriate to the liminal temperament of a colourist painter, or by responding to it as it responded to him.

Vermillon

Vermilion plays a significant role in the story of Coriolis's relationship with his medium. It is consistent with the fact that the painter adopted his pet, Vermillon, while travelling in Asia Minor, for instance, that the hue of the same name features in the painter's descriptions of the region's manifold, shimmering colours. It is among those, more particularly, that he mentions in a letter to his friend, the painter Anatole Bazoche, where he informs him that:

there is water everywhere you go, and in this water ... the entire carnival is reflected, and all the colours quiver and dance.... It's like shaking a kaleidoscope! Not to mention ... the people of this country, who are turquoise or vermilion.²²

Vermilion also features in the gaudy, Orientalising, colour scheme of the studio Coriolis occupies upon his return to Paris in 1850, in which

on a medieval credenza ... a little plaster donkey appeared to be drinking from a tin goblet full of vermilion.... Another credenza ... was decorated with a bundle of gold, red and blue banners and flags.... From an open box of colours, tin tubes, stained with and drooling colour ... shone like sparkling artificial pearls, and among them old tubes, empty and exhausted, lay crumpled like silver-paper.²³

An important aspect of both passages is that they connect vermilion and other intense colours with effects of shine and iridescence, which Coriolis finds distinctive of near-Eastern

light.²⁴ His desertion by Vermillion for Anatole, just as he is about to embark on a painting of an 'Orient ... sparkling with tender colours' where 'everything shines' and 'the light is an opalescent fog... with colours in it... flickering like pieces of coloured glass', can thus be interpreted as an omen of his impending alienation from his medium.²⁵

It is certainly the case that vermilion is only mentioned later in the novel in connection with sensations of colour and light which Coriolis is unable to express. This is most obvious in a passage where Coriolis tells his colleague, Garnotelle, of his inability to reproduce the effects Decamps captured in his (lost) painting, *A Turkish Café* [fig. 3], which he has seen at the Exposition Universelle. In this, 'a shaft of sunlight ... spangled the mats with gold, lit up the vermilion bowl of a pipe, the white or red of a turban, a jacket of old gold, a bloom at the bottom of a flower garden.'²⁶ By comparison, however, Coriolis is forced to admit that he has 'only made a mess.'

Coriolis's estrangement from his medium is finally confirmed towards the end of the narrative, in a passage which describes how his inability to express bright light in paint has left him gawping ineffectually at a display of minerals glittering in a shop window:

He could no longer conceive or see Light, except as intensity, flamboyant glory, diffusion, blinding sunbeams, lightning, the blaze of the theatrical finale, a hail of fireworks, or the white fire of *magnesium*. He no longer tried to paint daylight, only its dazzle.... he inherited somewhat the hallucination of the great Turner, who, towards the end of his life ... dissatisfied with the light painted before him and discontent even with the daylight of his own time, aspired in one canvas ... to a virgin and primordial daylight, to Light before the Flood.... In front of lapidaries's windows, in an attempt to steal from Nature, to ravish and carry away the multicoloured fire of these petrifications and crystallizations of a flash of lightning... he followed the whole gamut of reds, from sulphurous mercury, carmine and blood-red, to the blackish red of hematite, and the *amatito* of dreams....²⁷

Coriolis, in other words, is now unable to relate to colours except as inert materials. More particularly, 'sulphurous mercury' or cinnabar, the naturally-occurring crystalline form of vermilion, which has the highest refractive index of any mineral, only gleams independently of him, as an object of fantasy beyond his reach. To all intents and purposes, then, Coriolis's career takes the diametrically opposite route to the one whereby a successful painter makes a material such as vermilion into his medium.

Substance and shadow

Vermilion also plays a major role in the treatment of the painter's alienation from his medium in *La Proie et l'ombre*. It features, for example, in a long description of Germain's studio, which is kitted out with accoutrements and fabrics whose gaudy and shiny colours recall those of Coriolis's studio:

Two doors... were covered by a curtain of vermilion velour, edged with light yellow satin. The chairs and the sofa were done out in the same material. And the red and the yellow were repeated again ... on a Chinese screen placed in a corner of the studio.... The vermilion and the yellow of the draperies, the garish motley of the screen ... and the gold of the galleries, the doors, and the frames of various canvases gave the studio the flamboyant appearance of the high altar at the hour of benediction.²⁸

Subsequently, while painting his model, Sarah, Germain believes he has 'found an effect in vermilion'. But any suggestion that he has made the pigment into his medium is undermined by the fact that he got 'as much of the colour on himself as the canvas, on his hands, his shirt, his beard, and his hair.'²⁹ And only shortly afterwards, Germain is completely discredited by his futile attempts to advance the painting by 'brushing furiously, pushing the yellows and the reds in the foreground to the point of crudity', since their only result was that 'after three months of sessions, the magisterial work was nothing more than the daub of a scene-painter.'³⁰

The suggestion that Germain's alienation from his medium is ineluctable is amplified in the next episode, which recounts how Caroline brings him 'a series of yellows and a series of reds, made by a recent invention ... from the inventor's factory.'³¹ That is, despite the fact that 'The present pleased Germain greatly', only 'an hour later the canvas showed nothing more than a cloud of yellows and reds', resembling 'a piece of land worked after the rain.'³² As the author explains, 'Armed with a palette knife, Germain had scraped furiously ... had annihilated the masterpiece', turning it into 'a fog of yellow and red dust.' Germain's attempts to make paint to express 'impressions' which prove 'too intense for him' thus only serve, ironically, to dissipate the pictorial image under thick deposits of meaningless pigment.³³

If *Manette Salomon* alerted Cézanne to the risks of forcing his medium, *La Proie et l'ombre* must have made the applicability of this lesson to his own practice only too obvious. Roux's narrative may even bear on an actual painting by Cézanne, *Interior with Two Women and a Child* of c. 1870 [fig. 4]. For one thing, yellowish-orange and red colours are applied almost pure in this work, without first being mixed on the palette, giving the paintwork the rough-and-ready, distemper-like quality described in *La Proie et l'ombre*.³⁴ And, although the painting was not scraped down, it does show clear signs that it was slashed with a palette knife by the artist.³⁵

It could also be that Roux had in mind a 'huge picture' which Louis-Edmond Duranty described in 'Le peintre Marsabiel', a thinly-disguised parody of Cézanne he published in 1867.³⁶ This consisted of 'three figures ... on an entirely black ground... each executed by means of large, clashing, unmixed touches, where vermilion, Prussian blue, and lead white engaged in open warfare.'³⁷ The figures also had 'Large eyes with brilliant highlights' which 'popped out of their heads'; but Duranty conceded that 'an arm here, a section of hip there, elsewhere a knee, were treated with a furious power.' Some time before Roux, in other words, Duranty recognised how Cézanne used vermilion as a component of a forceful manner of painting intended to capture bright colours and effects of shine and lustre, which was prone even so to submerge the image beneath an incoherent accumulation of paint.

Spotting

Given the relevance of the cautionary tale Cézanne encountered in *Manette Salomon* and *La Proie et l'ombre* to his own technical difficulties, it is no coincidence that he became concerned in their wake to make 'painting' into 'a means of expressing sensation' in his letter to Zola of November 1878.³⁸ Vermilion features significantly in this evolution, playing in particular an increasingly complex, and sophisticated, role in establishing spatial relationships within the painting.

Vermilion could do this because, despite using it for effect in his earlier forced manner, Cézanne also employed it to model form, as in the *Portrait of Valabrègue*, where it helps define the tip of the nose. This 'highlight' is no longer 'pure vermilion', however, since close examination reveals that Cézanne mixed some white and a little black into his pigment, leaving only some streaks in the very tip, and the paint in the area to its left, unadulterated. Notwithstanding, the hue of this area is still crucial to its appearing salient. It does this partly because red appears to 'advance' since it is focused more readily than other colours, as Ernst Brücke maintained in *Des couleurs au point de vue physique, physiologique, artistique et industrielles* of 1866.³⁹ Red also 'has a vivacity that the other colours do not', as Charles Landon argued in his *Précis historique des productions des arts* of 1801.⁴⁰ And indeed, the phenomenologist David Katz argued later that red functioned both ways, possessing an 'insistence' which involved both its way of looking 'nearer' than blue, and a 'power of catching the eye... readily and holding it ... steadily'.⁴¹

Cézanne did not exploit the modelling potential of vermilion in the Valabrègue portrait as fully as he did in more mature paintings such as *Madame Cézanne* of 1885-6 [fig. 5], where he employed spots and streaks of pure red extensively to give several areas greater salience.⁴² Touches of this kind can be seen clearly underneath the sitter's left eye, at the left edge of her dress, just above her collar, and on her left shoulder. Cézanne did not use these merely to create isolated, or local effects, however.⁴³ Rather, he evidently took care to temper the prominence these spots gave the figure by adding identical touches to the background, immediately to the left of Madame Cézanne's left cheek and above her head

to the right. This portrait is clear evidence, in other words, that the mature Cézanne thought of the modelling effect of vermilion in terms of its action within the painting considered as a dynamic system in which each part affected every other.

'Ton'

It was earlier, however, in June 1874, that Cézanne gave the first clear indication that he was evolving his conception of colour, when he described in a letter to Camille Pissarro how he was experimenting with his colleague's technique of 'replacing modelling by the study of *tons*'.⁴⁴ Although well-known, the central issue this statement raises has received little attention, namely what Cézanne and Pissarro meant by '*ton*'. In earlier usage, *tons* designated variations in luminosity. Charles Blanc stated in his *Grammaire des arts du dessin* of 1867, for example, that 'all visible objects ... possess a degree of brightness or obscurity which assigns them a point on the scale of light and dark, and gives them a value [*valeur*], which is ... called their *ton*.'⁴⁵ In the Impressionists' circle, however, '*ton*' had a different use. Félix Bracquemond stipulated in *Du Dessin et de la couleur* of 1885 that the phrase 'right *ton*' [*ton juste*] combined in a single expression the idea of modelling and that of colour, the word *ton* having the dual meaning of luminosity [*valeur*] and colouration.'⁴⁶ Cézanne clearly shared this conception of *ton* since he told Vollard in 1899 that he could only fill in the blank patches in his portrait if he found 'the right *ton*' [*ton juste*] with which to do this.⁴⁷ In 1901, moreover, Cézanne as good as paraphrased Bracquemond when he told Léo Languier that 'accuracy [*justesse*] of *ton* gives the luminosity and the modelling of the object at the same time.'⁴⁸

A connection between *tons* and modelling is also implicit in a letter Cézanne sent Zola in July 1876, in which he described his motif at L'Estaque as follows:

It's like a playing card'. Red roofs against the blue sea.... The sun is so terrifying here that it seems to me that objects stand out not only in white

or black, but also in blue, red, brown, and purple. I may be mistaken, but this seems to me to be the very opposite of modelling.⁴⁹

Although this letter could be taken, anachronistically, to indicate Cézanne's allegiance to a Modernist aesthetic of flatness, what the artist was driving at was that the motif looked incongruous because it lacked the variety of *tons* that normally made it look three-dimensional.⁵⁰ Or to use the language Cézanne used in conversation with Emile Bernard in 1904, 'nature' on this occasion did not exhibit 'modulations' but only 'broad hues'.⁵¹ As a result, Cézanne had to wait until the weather was less extreme, and the motif more variegated, to make a satisfactory painting. The result was *The Sea at L'Estaque* [fig. 6] of 1876, which embodies the principle Cézanne outlined in his conversation with Bernard that 'to modulate' a painting is 'to model' it, and hence also expresses how 'nature is more depth than surface', as he told Bernard in a letter of April 1904.

Perhaps the most important aspect of Cézanne's theory of *tons* as the agent of modelling is that it envisaged the value or effect of each individual *ton* in the painting as entirely relative, or dependent on the *tons* next to it and further afield. In 1904, for example, the painter told Bernard that 'Contrasts and affinities between *tons*, that's the secret of drawing and modelling'.⁵²

One aspect of such relationships was 'the opposition of warm and cool *tons*' Cézanne described to R.P. Rivière and Jacques Schnerb.⁵³ Cézanne undoubtedly believed that these could form pairs, although he did not tell them this explicitly. But he did tell them that warm and cool *tons* could form sequences, since they describe how Cézanne's 'chromatic conception of modelling' involved 'juxtaposing' rather than 'blending' his 'tons' because 'he considered modelling as a succession of *tons* running from warm to cool'.⁵⁴

The relationships possible between *tons* did not stop here, however, since it is clear that Cézanne regarded the appearance, and modelling power, of any individual *ton* in the painting as a matter of its relation to every other. He made his most explicit statement to this effect when he told Bernard that 'Modelling results from the exact relationship between *tons*. When they are harmoniously juxtaposed, and they are all present, the

painting models itself.⁵⁵ Similarly, Cézanne told Languier that ‘modelling’ was the result of ‘accuracy [*justesse*] of *ton*’ within a painting whose colours ‘harmonise’.⁵⁶

Pissarro had spoken of ‘harmony’ as key feature of Monet’s work as early as May 1873, in a letter to the critic Théodore Duret.⁵⁷ The critic Armand Silvestre also described the central importance of ‘harmony’ in the work of Pissarro and his colleagues in a review of 1872, where he explained this effect by reference to their ‘subtle and exact observation of the relationships between *tons*’.⁵⁸ Georges Rivière expounded a similar view in a review of the second Impressionist exhibition of 1877, where, he singled out how Pissarro employed of ‘a variety of *tons*’ whose ‘relationships’ were ‘accurate [*juste*]’, concluding that ‘it is this variety and these rapports which constitute the powerful harmony of M. Pissarro’s works.’⁵⁹ Similar phrases echo in reviews by these and other critics friendly towards Impressionism in the 1870s, suggesting that Pissarro, whom Renoir dubbed the ‘theorist’ of the movement, took trouble to explain some of the key features of his ideas about of *tons* to them.⁶⁰

Although it is implicit in such criticism that harmony, or relations between *tons*, produce modelling, it is Cézanne who makes this explicit. There is no ambiguity, then, that the harmony in his paintings is not a decorative or surface feature, but one in which colours only accord inasmuch as they represent planes which sit at the right depth in pictorial space relative to one another.

Roger de Piles

Much of what Cézanne said about harmony echoes arguments advanced by Roger de Piles in a series of works published between 1668 and 1708. So, although there is no concrete evidence to link Cézanne to Piles, who also used the word *ton* to refer to values of light and dark, it is none the less possible that the artist formulated his own theory in response to his predecessor’s, either directly or indirectly.

Piles first put forward ideas on harmony in the ‘extensive’ remarks he included in *L’Art de peinture* of 1668, which was his translation of Charles Dufresnoy’s *De arte graphica* of the

same year. One of the more important techniques advocated by Dufresnoy was to allow neighbouring colours to reflect on, and thus 'participate' in, each other in a relationship of mutual 'friendship'.⁶¹ Du Fresnoy also recommended the use of 'broken colour', or mixing one colour into another, to engender 'union' and 'accord' between them. Piles elaborated the rule, in his discussion of 'friendship', that there is 'union and sympathy' between colours if they produce a 'sweet' resultant when mixed together, as blue and yellow do in forming green, but not if the upshot is a 'sour colour' of the kind generated when vermilion and blue are blended.⁶² He consequently argued that the painter should avoid 'opposition' between colours such as vermilion and ultramarine, or that 'enemy' colours of this kind should be 'allied' by mixing 'other colours' into them which 'accord' with them, and 'are in sympathy with each another'.

Piles nevertheless conceded that 'antipathy' between colours is tolerable when, for example, it can be harnessed to 'make one [figure] noticeable ... above the others'. He pointed out, for example how Titian had used a vermilion sash in *Bacchus and Ariadne* of 1556-9 to draw the eye to her, and to 'detach' her blue dress from the 'background' of the blue sea. He also mentioned how, in *The Wedding Feast at Cana* of 1563, one of Cézanne's favourite paintings, Veronese used a combination of vermilion and blue to ensure that the 'eye is drawn' to Christ, even though he is 'set back' in the painting.⁶³ Piles, in other words, realised that antipathetic colour combinations not only enhanced the visibility of an area of a painting, but could also make things look salient, or produce modelling effects of a sort.

Piles argued in the same discussion that pictorial harmony was musical in character, describing how painters who understand 'accord between colours ... have used broken and composed colours, out of which they have made a music for the eyes, mixing those which have some sympathy the one with the other, to make a whole which involves union between neighbouring colours.' And elsewhere, he argued that the elements of the painting were perceived as a 'whole ensemble', and thereby constituted an 'economy' or dynamic system whose effect on the eyes was equivalent to that of a 'musical concert' on the ears.⁶⁴

Piles subsequently brought his ideas about musicality and modelling power of colours together in a section of his *Abrégé de la vie des peintres* of 1699, entitled 'On the Accord of Colours', where he argued that

There is harmony and dissonance between the kinds of colours, just as there is between tones of light and dark – in the same way as the notes in a musical composition must not only be true [*juste*], but the instruments performing it must also be in accord. And just as musical instruments do not always go well with one another ... so certain colours cannot be placed side by side without offending sight, such as vermilion with green.... But rather as the most piercing instruments are redeemed, and sometimes produce a very good effect, when placed among several others, so it is that the most antagonistic colours, when placed appropriately among several others which are in unison, render those parts of the picture more noticeable, which ought to predominate and draw the eye.⁶⁵

In short, then, Piles characterised the harmony in a painting as a system wherein each element should have the requisite salience, just as Cézanne was to later.⁶⁶ The same is true of the book that Michel-François Dandré-Bardon published in 1765, *Traité de peinture suivi d'un essai sur la sculpture*.⁶⁷ But whereas Piles used *ton* to refer to values, Dandré-Bardon used it interchangeably with *couleur*, to denote the pictorial equivalents of 'the natural colours of objects', and hence spoke of how *tons*, including 'broken *tons*', could create 'harmony', 'accord', and a 'whole ensemble'.⁶⁸ In addition, Dandré-Bardon rehearsed Piles's ideas about the 'friendship' of colours, and the musicality of their relationships.⁶⁹ But perhaps the most radical aspect of this theory was that any *ton* is 'arbitrary' in absolute terms, or is 'dependent' for its appearance on 'all those that surround it'.⁷⁰ Even the most ostensibly original feature of Cézanne's theory of *ton*, that is, had a precedent in the art theory Piles instigated.

Rochenoire

There are many strong similarities between the ideas about *ton* Cézanne articulated and the modest painting manual, *La Peinture à l'huile apprise seul avec sept couleurs pour un franc*, which the animal painter, opponent of the Salon Jury, and friend of Manet, Julien de la Rochenoire published in 1854.⁷¹

The basis of Rochenoire's argument was that 'with seven mother colours it is a simple matter to obtain the number of *tons* necessary for painting anything that exists in nature'.⁷² He then described how it is possible to compose all the 'tons' necessary for painting heads by mixing the pigments – silver white, yellow ochre, vermillion, cobalt [blue], Sienna, and burnt Sienna – laid out on the top row of his in his indicative table [fig. 7].⁷³ The various mixtures these produce he arranged in three rows, which correspond to the 'tons' required for the heads of men, women, and children. But although all three rows are effectively scales of values (grey scales) running left to right from dark to light, they also make use of hue to distinguish their component *tons*. This is apparent in Rochenoire's illustration of the lay-in (*ébauche*) of the child's head [fig. 8], in which a series of discrete zones each coloured with a single *ton* (taken from the bottom row of the indicative table) create contrasts of warm and cool, which engender relief when seen together.⁷⁴

Rochenoire justified his use of discrete areas of *ton* by referring the reader to a section on 'Relief et mosaïque' in his *Le Pastel appris seul avec sept couleurs pour un franc* of 1853, in which he explains how a mosaicist is able to reproduce a painting using 'an infinite number of small ... stones, forming all kinds and gradations of colours and *tons*' necessary for 'the imitation .. of the most imperceptible nuances of the object it copies'.⁷⁵ Hence, in *La Peinture à l'huile*, Rochenoire argues by analogy that 'all the *tons* you see' in any scene can and ought 'to be reproduced, touch for touch, by an infinity of infinitely small planes'.⁷⁶ The notion that the painting is effectively a mosaic also leads Rochenoire to stipulate that the sketch 'must be ... broad of masses, and free of minute details'.⁷⁷ Nevertheless, when 'seen from a certain distance' Rochenoire argued, it can create a perfect 'illusion', provided its maker takes to care to 'blend and ... link together' his pieces of stone with 'accuracy [*justesse*] in the relationship of *tons*'.⁷⁸ Similarly, the painted sketch of the head will cease

to resemble 'an incoherent piece of marquetry' when the painter 'move[s] back a few steps', if his '*tons* are accurate [*juste*] in value and in their place'.⁷⁹ Nothing conclusively indicates that Cézanne knew these passages, but it may not be a coincidence that Maurice Denis pointed out how a painting by him could be considered a 'mosaic of separate colours, which blend in gently with one another'.⁸⁰

Since some degree of separation between *tons* is crucial to the appearance of the painting, Rochenoire insists that if the artist is to transform his lay-in into a finished work he must not only 'blend all the *tons* together' in the sense of harmonising them, but also and 'above all avoid altering them, so as to obtain modelling without loss of form or colour'.⁸¹ Accordingly, he advises the artist to 'Paint ... handsomely, broadly, honestly'. The same imperative underlies Rochenoire's recommendation that the painter should not to scrape down the painting if he does 'not succeed at the first attempt', but should instead 'take another canvas [and] start afresh by placing ... *tons* boldly and vigorously, and modelling with them' until he achieves 'complete success'.⁸² Again, Cézanne may have followed this advice since he often made a second version of a painting which he could not resolve, starting from scratch.⁸³

It is central to Rochenoire's theory that *tons* do not stand for their counterparts in the scene punctually, or one-for-one, but only structurally, or in relation to one another. Rochenoire mentions, for instance, how the colour in a painting will be good provided only that the 'relationship between *tons*' and the 'relative value of *tons*' is observed.⁸⁴ He also argues, in a more radical spirit, that it makes little difference to the accuracy of their pictures if different artists use 'different colours' to paint what they see, as long as 'the relation between *tons* is well observed', or the 'the relative value of *tons*' respected in each.⁸⁵ A painting can employ individual *tons* which are quite arbitrary from a punctual point of view, but it will still succeed in modelling the scene it depicts if the relationships between them are accurate.

Rochenoire describes the whole created by the 'scale of *tons*' corresponding to a head of the kind he illustrates, as the 'harmony' of the painting.⁸⁶ He also uses the term 'harmony' to denote the 'infinite number of nuances corresponding to the bodies and shadows' in a

scene more generally.⁸⁷ This indicates that Rochenoire expected the painter to mix already mixed *tons* when harmonising them, even while avoiding ‘loss of colour’. Indeed, he states elsewhere that with his seven ‘mother colours’ it is possible to obtain as many as ‘three thousand’ *tons*.⁸⁸ It may be significant in this context, therefore, that pigment analysis reveals that Cézanne not only mixed white into his pigments, and black (although he told Joachim Gasquet that Pissarro had ‘eliminated black, bitumen, sienna, and ochres’ from his palette from 1865), but sometimes mixed as many as six or seven differently coloured pigments together.⁸⁹ At all events, doing so allowed Cézanne to mix paint to form an unusually wide range of *tons*, of just the kind Rochenoire recommended.

Madame Cézanne

The marked shift taken by Cézanne’s use of colour in the early 1870s culminated in 1877 in a series of highly resolved, closely harmonious, and remarkably cohesive paintings, in which harmonies of *tons* were employed to produce modelling. Among the most successful, or coherent, of these is the second version of *Madame Cézanne in Red Armchair*, now in Boston [fig. 9].⁹⁰ Indeed, it is fair to say that in this Cézanne developed, and implemented, many of the ideas about *ton* that he only articulated in detail much later, perhaps on the basis of what he took from Piles or Rochenoire. This argument may sound anachronistic, but it stands to reason that Cézanne only formulated rules about what he had achieved in paint after the fact. It also makes sense that he only started to communicate these rules to younger artists towards the end of his life when he became anxious to have followers who could ‘carry on’ his project after his death.⁹¹

One aspect of Cézanne’s achievement in this painting, which he later formulated in words, is that it succeeds in analysing surfaces which are notionally uniform in colour, but actually composed of different *tons*, into ‘blocks’ of colour. In the sitter’s face, some of these areas contrast quite strongly with their neighbours, while others are more closely related, thereby establishing both clear-cut relations between *tons*, and more subtle relationships between

what Cézanne described as 'half-tones' and 'quarter-tones' in letter of December 1904 to Bernard.⁹²

The measure of the sophistication of Cézanne's technique in this work is that the blocks of colour in the corresponding area of the Stockholm version [fig. 10] of the same subject are more abruptly distinguished from one another by their sharper edges and starker differences in luminosity and hue. So, whereas the modelling in this work is a little harsh and disjointed, it is much more cohesive in the Boston painting. This strongly suggests that Cézanne began this work in a fresh attempt to resolve relationships between *tons* which he could not resolve in its sister painting, without ruining what he had already achieved. This conclusion is confirmed by the fact that the Boston painting is more completely covered in paint, as a result of its colour relationships being more fully elaborated.

Another technique Cézanne explored in this work, but only articulated in later life, was the use of contrasts of warm and cool *tons* to create modelling. This drew the attention of the poet, Rainer Maria Rilke, when he saw the (Boston) painting at the Salon d'Automne in 1907, leading him to describe, accurately, how 'The left armrest and the tassel that hangs down from it full of vermillion ... have ... behind them ... a broad stripe of greenish blue, against which they clash in loud contradiction.'⁹³ It is a difference in hue, in other words, rather than luminosity which allows the tassel to stand out against the skirting board. Similarly, Cézanne increased the separation between the armrest immediately above the tassel and the olive-yellow wall behind it by placing contrasting touches of bluish-green adjacent to its red. The contrast between red and green also plays an important role in the flesh-modelling in this painting, particularly around the sitter's mouth and her left temple.⁹⁴ It is an indication of the sophistication of the Boston picture that the relatively harmonious contrast between these colours produces what Adrian Stokes later called 'identity-in-difference', or the sense that they form a single unified harmony, whereas the less concordant combination of red and blue in the Stockholm painting does not.

In the Boston painting, Cézanne nevertheless chose to retain the scheme from the Stockholm painting wherein Madame Cézanne's blue dress was set against a vermillion armchair. Perhaps he did so because he believed this colour combination could draw the

spectator's eye. Notwithstanding, it is significant that Cézanne played down the contrast in brightness between the dress and the armchair in the later painting. As a result, the sitter no longer stands out from the chair as she does in the Stockholm picture, but sits in the almost same plane as it. Spatial parity is also engendered by the way that the more luminous red of the armchair in the Boston painting pushes forward against the now duller blue of Madame Cézanne's dress.⁹⁵ Once more, then, Cézanne moved from a relatively harsh and disjointed manner of modelling in the Stockholm painting towards one in which *tons* in the Boston version model forms within a tightly cohesive space.

Relations between *tons* in *Madame Cézanne in a Red Armchair* extend beyond those involved by the local contrast of warm and cool colours to the relationships between more elaborate 'successions' of *tons*. That is, Cézanne allows each *ton* in a relatively circumscribed area such as the face to accrue a particular perceptual value by virtue of its participation in the series it forms in concert with those around it. It is nevertheless fair to say that the green touches modelling around the sitter's mouth, and in her temples, do appear a little anomalous if the face is viewed in isolation. Their incongruity disappears, however, when it is seen within the context of the whole painting, or its overall harmony.⁹⁶

Rilke expressed a similar observation when he observed how the 'red' of the armchair in *Madame Cézanne* 'is that', or is the colour it is, 'only because it contains latently within itself an experienced sum of colour which ... reinforces and confirms it in this red.'⁹⁷ He was even more perspicacious when it came to expressing how all the colours in the Boston painting interacted to form its harmony. '*It's as if every part were aware of all the others*', he wrote, 'that much adjustment and rejection is happening in it'.⁹⁸ Pursuing this idea, he went on to suggest that the colours in the painting formed a dynamic system, describing how:

Everything has become an affair that's settled among the colours themselves: a colour will come into its own in response to another, or assert itself, or recollect itself... intensifications and dilutions take place in the core of every colour, helping it to survive contact with others.... In this hither and back of mutual and manifold influence,

the interior of the picture vibrates, rises and falls back into itself, and does not have a single unmoving part.⁹⁹

With equal discernment Rilke noticed how, in Madame Cézanne's face, Cézanne had recruited all the colours of the painting, from the 'vermilion' of the armchair to 'greenish yellow' and 'yellowish greens' of the skirt to 'bluish grey' colours of the jacket and the 'blue grey, greenly scintillating' colour of the bow, for the purposes of 'modelling [its] form and features'. The fact that the face is indeed modelled using the local colours of the objects around it makes it likely that Cézanne completed it last, as he is known to have done in later portraits, to ensure that it harmonised with the rest of the painting.¹⁰⁰ The perceptual fact that it models itself perfectly when seen from a distance confirms this hypothesis.

Perhaps the most singular fact responsible for the phenomenology of *Madame Cézanne in a Red Armchair* is that it employs a very finely differentiated range of *tons*, some only barely distinguishable from one another, to create a harmony which is extremely finely-wrought. Cézanne spoke of this technique later, when he told his son in a letter of August 1906, that 'the trick is to put as much affinity [*rapport*] as possible' into the painting.¹⁰¹ What he meant is most readily appreciated by comparing the Boston version with its Stockholm relative, which makes it apparent that Cézanne spread more colours more widely around the later painting, and also mixed them into each other more. By introducing the skirt into the Boston painting, for instance, Cézanne added a measure of green to it. This colour is echoed in Madame Cézanne's right sleeve and the shadow to its right, making relationships between *tons* in these areas particularly rich and close, as well as linking them with other parts of the painting. By contrast, the corresponding areas of the Stockholm painting, where a greyish-blue item of sewing with only a little green in it takes the place of the skirt, are less tightly integrated with each other, and with the rest of the painting.

Cézanne pursued the blending of colours in the skirt itself to a remarkable extent, mixing together a range of warm and cool *tons* to create a gamut of subtly differentiated broken colours, or coloured greys, which avoid being either muddy or drab [fig. 11].¹⁰² Cézanne could have developed this technique from reading Charles Bourgeois (or later commentators on his work), who recommended mixing unequal quantities of

complementary colours to produce faintly-coloured 'surfeits' [*excédans*] in his *Manuel d'optique* of 1821 (and elsewhere).¹⁰³ Again, though, it was Rilke who expressed the effect produced by these mixtures most adequately, when he noted how:

grey, literally grey, cannot be found in Cézanne's pictures... he went to the core of it and found that it was violet there or blue or reddish or green... where we would only expect and be contented with grey ... he doesn't relent and pulls out all the violet hues that had been tucked inside, as it were; the way certain evening, autumn evenings especially, will address the greying facades directly as violet, and receive every possible shade for an answer, from a light floating lilac to the heavy violet of Finnish granite.¹⁰⁴

A more prosaic way of stating what Cézanne's painting achieved by employing such finely differentiated *tons* is that he could exploit an area of colour space around grey, largely neglected by other painters, for the purposes of increasing the number and consequently the proximity of relationships between *tons*, thereby amplifying their resonances with one another. *Madame Cézanne in a Red Armchair* thus possesses an extraordinary optical density and cohesion. Bernard hit on the singularity of this aspect of Cézanne's work when he explained how although adding 'black and white' to his 'melodious gamut' of colour took the 'purity' from 'his colours' and diminished their 'brilliance', it resulted in a 'gain in harmony and depth of colour'.¹⁰⁵

It makes sense, then, that Cézanne told Gasquet that his canvas 'joined hands' when all the colours in it harmonised, and that he 'join[ed] his hands' together tightly by way of illustration, and then 'made the gesture again, drew his hands apart, the ten fingers spread out, and brought them together slowly, very slowly, clenched them up, made them penetrate into each other'.¹⁰⁶ It seems likely, by extension, that Cézanne alluded to this kind of harmony when he depicted Madame Cézanne with her hands interlocked in the Boston portrait.¹⁰⁷ It is nevertheless important to emphasise that density of harmony was not an end in itself for Cézanne, but a means of modelling, and more specifically of creating a scene in which every element was tightly-integrated with every other. He articulated this

ambition in conversation with Gasquet, telling him that when 'All the *tons* [in the painting] blend into one another, all the volumes interlock.'¹⁰⁸ Rilke also expressed the same thought poetically when he observed that, in *Madame Cézanne in a Red Armchair*, 'each daub plays its part in maintaining equilibrium and in producing it: just as the whole picture finally keeps reality in equilibrium.'¹⁰⁹

Conclusion

Equilibrium is not the same thing as stasis, of course. And in *Madame Cézanne in a Red Armchair*, Cézanne used gentle highlights – in the sitter's face, the ribbon fastening her jacket, and the armchair – which are just capable of indicating how these surfaces are shiny.¹¹⁰ There is, in other words, a residue of a kind of colour Katz identified with a 'process' of shining, involving duration or the passing of time, which is in train amid Cézanne's largely static, 'adjectival colour'.¹¹¹ Taken in the light of what he had read about shine in Goncourt and Roux, it could be argued that Cézanne recuperated Coriolis's failure to capture the pearlescence and iridescence of the Orient, and Germain's incapacity in the face of flamboyance, by relegating these troublesome aspects of colour to a subsidiary role in the painting.

The effect Cézanne creates is barely noticeable, therefore, beside the sparkling colours Monet employed in *Valley of the Petite Creuse* of 1889 [fig. 12]. His *tons* are also a long way from the 'shimmering colours of punch flame and pigeon breast' Monet aimed to capture according to a letter he wrote to Blanche Hoschédé in March 1884.¹¹² Quite possibly, then, Monet sought self-consciously to succeed where Coriolis had failed. It was nevertheless only by pushing painting to its limits that he succeeded in his ambition to the extent that he did.

The relevant fact here, as Cézanne told Denis, is that 'Light is not something which can be reproduced, but which must be represented by colours.'¹¹³ And this, as Cézanne explained to Rivière and Schnerb, is because 'the *tons* the painter has at his disposal come to

represent light and shade, without having their absolute luminosity in themselves.’¹¹⁴ The limitations to paint’s luminosity were well-known. Piles’s translation of Dufresnoy, for example, pointed out that ‘It is pointless to work at capturing the bright light of midday in a painting, since we do not have Colours which could ever attain it’.¹¹⁵ And in *De la lumière et de la couleur chez les grands maîtres anciens*, the only book on colour Cézanne is known to have owned, Jean-Désiré Régnier argued that ‘even [the] brightest colours cannot render the luminosity of the light emanating from the sun’. He therefore insisted that the painter must recognise this ‘difference ... between light and even the brightest colouring materials at his disposal ... so that he is informed and of, and educated in, the limitations of his power’.¹¹⁶ Or to put the matter in modern scientific terms: paint can neither replicate the range of value differences we distinguish in nature, nor the absolute brightness it can assume for the human eye.¹¹⁷

What is more, just as we only see a real highlight in ‘depth’ according to the philosopher, Ludwig Wittgenstein, so we perceive shine in a painting within the context of the virtual space it contains.¹¹⁸ Pictorial space is impoverished, however, as John Willats has shown, because it relies on a system of projecting three-dimensional space which can only convey some of its characteristics. James Cutting has also demonstrated that it cannot avail itself of certain depth clues, such as stereopsis or motion parallax, at all.¹¹⁹ The pictorial space in which we see shine is thus not only shallower than its real counterpart, but also *sui generis*, causing Willats to classify it as a ‘third domain’ lying between two and three dimensions.

It follows that the perceptual properties pigments have when we see them as materials in the real world are categorically different from those they exhibit when we see them within the virtual world of the picture. It is perfectly possible, therefore, as Wittgenstein pointed out, to create a plausible impression of a shiny material such as ‘gold’ in a painting using only a ‘yellow’ pigment which is not itself shiny.¹²⁰ So, too, Titian and Veronese used vermilion (if Piles is to be believed) to represent lustrous cloths in *Bacchus and Ariadne* and *The Wedding Feast at Cana*. It would seem, in other words, that we will see shine in a painting provided only that there are abrupt, local, and circumscribed increases in the relative brightness of its pigments indicating highlights. And indeed, some paintings, notably Turner’s, can even conjure up a dazzling light which is almost painful to look at.¹²¹

By this account, a matt vermilion pigment can produce a *ton* capable of capturing the iridescence and shimmer of Oriental light, or the dazzling brilliance of a high altar. But it can only do this at the cost of sacrificing the integrity of relationships between closely-related *tons*. And it cannot do so in a painting where *tons* hold together tightly, without sharp divisions between them. For Cézanne, then, abandoning any attempt to align his ‘personal way of seeing’ [*optique personnel*] with Coriolis’s was ultimately a matter of electing to use his medium creatively rather than imitatively, as Monet did.¹²² He chose, in other words, to bestow cohesion and solidity on the world’s shiny surfaces, rather than risk allowing them to evaporate.

NOTES

¹ Le Masque de Fer, 'Échos de Paris', *Le Figaro* (24 Mars 1875), 1.

² As quoted by Camille Pissarro in a letter to Lucien of January 1896; see *Correspondance de Camille Pissarro 1895-1898*, vol. 4, ed. Janine Bailly-Herzberg (Paris: Valhermeil, 1989), 153.

³ Cited in John Rewald, *Cézanne: sa vie, so oeuvre, son amitié pour Zola* (Paris: Albin Michel, 1939), 168.

⁴ See Champfleury, *La Succession Le Camus* (Paris: Poulet Malassis et de Brosse, 1860), 125-38, esp. 131-2.

⁵ Ambroise Vollard, *Paul Cézanne* (Paris: Vollard, 1914), 22.

⁶ Stendhal [Henri Beyle], *Histoire de la peinture en Italie* (Paris: Michel-Lévy, 1868), 214-15. On Cézanne and Stendhal, see Robert Ratcliffe, *Cézanne's Working Methods and Their Theoretical Background* (Ph.D. dissertation, University of London, 1960), 312-27; and Marius Roux, *The Substance and the Shadow* (University Park PA, Penn. State, 2007), trans. Dick Collins and Fiona Cox, ed. Paul Smith, xxvi, 114-15, and 158.

⁷ *Paul Cézanne: Correspondance*, ed. John Rewald (Paris: Grasset, 1978), 176.

⁸ Edmond and Jules de Goncourt, *Manette Salomon*, 2 vols (Paris: Librairie internationale, 1867), 1: 202 and 51. On this novel and Vermeillon, see Alain Buisine, 'L'impossible couleur: l'Impressionnisme et la critique d'art', *Word & Image*, vol. 4, no. 1 (1988), 131-8, esp. 131-2. Cézanne not only informed Vollard that he 'used to like *Manette Salomon* very much', but he also told Charles Camoin around 1902 that the novel was 'what a painter should read'; see Vollard, *Paul Cézanne*, 176; and Charles Camoin, 'Souvenirs sur Paul Cézanne', *L'Amour de l'art* (1920), 26. See also Joachim Gasquet, *Cézanne* (Paris, Bernheim-Jeune, 1921), 44 and 66; and Robert Ratcliffe, *Cézanne's Working Methods*, 372. Coriolis, moreover, is a Provençal of Creole and ultimately Italian origins, not unlike Cézanne according to Vollard, *Paul Cézanne*, 3 (on the roots of the Cézanne family in Cesena) and 9 (on the 'remote Creole origins' of Cézanne's mother, née Elizabeth Aubert). See also Frantz Jourdain, *L'Atelier Chantrel: moeurs d'artistes* (Paris: Charpentier, 1893), 216-7, which describes how

Manette Salomon was considered 'a beautiful book ... a real revelation' by artists of his generation.

⁹ Goncourt, *Manette Salomon*, 1: 209 (and 280). See also Carol Armstrong, *Manet Manette* (London and New Haven: Yale University Press, 2002), 55. On the gender of colour and line, see Charles Blanc, *Grammaire des arts du dessin* (Paris: Renouard, 1867), 595. On the alchemical belief that vermilion combined male and female attributes by virtue of synthesising sulphur and mercury, see Spike Bucklow, *The Alchemy of Paint: Art, Science and Secrets from the Middle Ages* (London: Boyars, 2009), 80-81 and 231.

¹⁰ Goncourt, *Manette Salomon*, 2: 178 and 1: 280.

¹¹ Cézanne certainly knew this, since he wrote to 'the author of *L'Ombre et la proie*' in some embarrassment around 1879, asking him to 'separate' the artist's 'persona of an Impressionist painter' from the 'man'; see Cézanne, *Correspondance*, 178. Zola was a regular contributor to *Le Gaulois* in 1868 and 1869, and Paul Alexis published poems (supposedly by Baudelaire) in it in 1869.

¹² Marius Roux, *La Proie et l'ombre* (Paris: Dentu, 1878), 151 and Roux (2007), 92.

¹³ See Roux, *The Substance and the Shadow*, xiv-xvi.

¹⁴ Roux, *La Proie et l'ombre*, 138.

¹⁵ *Ibid.*, 188.

¹⁶ *Ibid.*, 35 and 326.

¹⁷ See John Dewey, *Art as Experience* (New York: Minton, Balch and Co., 1934), 196 (on colour), 200-211, 259, and 287; Stanley Cavell, *Must We Mean What We Say* (1969), 221; Michael Podro, [review of] 'Art and Its Objects by Richard Wollheim', *The Burlington Magazine*, vol. 124, no. 947 (February 1982): 100-102, esp. 100; and Jonathan Gilmore, *Picturing the World* (SUNY, 1986), 16 (on 'the dynamic interaction of the artist with the medium'), 17, 120, 128, 137, 139 (on Cézanne) and 169.

¹⁸ See Maurice Merleau-Ponty, *The Phenomenology of Perception* (London: Routledge & Kegan Paul, 1996), 145.

¹⁹¹⁹ Karl Madsen, 'Kunst: Impressionisterne i Kunstforeningen', *Politiken*, 9 November 1889; trans. Merete Bodelsen, 'Gauguin's Cézannes', *The Burlington Magazine*, vol. 104, no. 710 (May 1962): 204-11, esp. 208. Cézanne also painted 'with a loaded brush like Manet' at this

time to give 'form with the brush'; see Maurice Denis, 'Cézanne', *L'Occident*, no. 70 (September 1907), 118-33; reprinted in *Théories* (Paris: L'Occident, 1912), 257-8, esp. 249.

²⁰ On touch, see Richard Shiff, 'Cézanne's Physicality: The Politics of Touch', in *The Language of Art History*, ed. Salim Kemal and Ivan Gaskell (Cambridge: Cambridge University Press, 1991), 129-80. Tanguy supplied 'coarsely ground' paint to order; see *Vincent van Gogh: The Letters*, ed. Leo Jansen, Hans Luijten and Nienke Bakke, (<http://vangoghletters.org/vg/>, last consulted 27 July 2017), nos. 677 and 688 (September 1888) and 694 (October 1888); and Philip Ball, *Bright Earth: the Invention of Colour* (London: Viking, 2001), 203-4. Cézanne also told Emile Bernard in 1904 or 1906 that he found 'coarse materials' congenial; see Emile Bernard, 'Souvenirs sur Paul Cézanne', *Mercur de France*, vol. 70 (1907), nos. 247-8, 387-404 and 606-27, 400. And as late as 1905, Cézanne declared that still liked to paint 'with a loaded brush [*en plein pête*] like Courbet'; see R. P. Rivière and Jacques Schnerb, "L'atelier de Cézanne," *La Grande revue*, 25 December 1907, 811-17; reprinted in *Conversations avec Cézanne*, ed. Michael Doran (Paris: Macula, 1978), 85-91, esp. 91.

²¹ See Félix Bracquemond, *Du Dessin et de la Couleur* (Paris: Charpentier, 1883), 37-8, on the how the term 'colour' refers both to 'a superficial physiognomic appearance which distinguishes the things we perceive from one another' and 'the materials employed in painting'. Vermilion has been found in paintings and watercolours Cézanne made between 1877 and 1904; see Faith Zieske, 'An Investigation of Paul Cézanne's Watercolors with Emphasis on Emerald Green', *The Book and Paper Group Annual* (1995), (cool.conservation-us.org/coolaic/sg/bpg/annual/v14/bp14-09.html, accessed July 27, 2017); Marigene Butler, 'An Investigation of the Materials and Technique Used by Paul Cézanne', *Bulletin of the American Institute for Conservation of Historic and Artistic Works*, vol. 13, no. 2 (April 1973), 77-85; and 'A Microscopical Investigation of Pigments and Technique in the Cézanne Painting *Chestnut Trees*', *Modern Microscopy*, 13 September 2015 [1973], www.mccrone.com/mm/investigation-pigments-technique-cezanne-painting-chestnut-trees/, accessed July 27, 2017. Vermilion is mentioned in the shopping lists of pigments Cézanne jotted down in his sketchbooks in the mid-1870s and early 1880s; see Elisabeth Reissner, 'Ways of Making: Practice and Innovation in Cézanne's Paintings in the National Gallery', *National Gallery Technical Bulletin*, vol. 29 (2008), 4-30, 29 n. 37, citing Adrien

Chappuis, *The Drawings of Paul Cézanne: a Catalogue Raisonné* (Greenwich, Connecticut: New York Graphic Society, 1973), nos. 507 (1875-8), 564 (1879-82), 805 (1880-82), and 963 (c. 1888); and Theodore Reff and Innis Shoemaker, *Paul Cézanne's Two Sketchbooks* (Philadelphia : Philadelphia Museum of Art, 1989), 239. According to an unpublished bill from Julien 'Père' Tanguy to Cézanne of December 1887, the colour merchant supplied the artist with 'vermilion' (transcription made by Philippe Cézanne of a bill from Tanguy to Cézanne then in the possession of Jean-Pierre Cézanne, sent to Robert Ratcliffe in 1959, and given to the present author by Daphne Ratcliffe.) Vermilion is also present on the palette Emile Bernard saw when he visited the artist for the second time in 1905; see Bernard, 'Souvenirs sur Paul Cézanne', 613; Alain Colombini, Jean-Marc Vallet, and Bruno Ely, 'Conservation of Cézanne's studio objects: characterisation of painting materials', (poster) ICOM Fourteenth Triennial Meeting, The Hague, 12-16 September 2005, (www.academia.edu/21326983/Conservation_of_Cézannes_studio_objects_characterisation_of_painting_materials, accessed July 27, 2017).

²² Goncourt, *Manette Salamon*, 1: 61.

²³ Ibid., 188-9.

²⁴ On Coriolis's fascination with oriental light, see Buisine, 'L'impossible couleur', 133.

²⁵ Goncourt, *Manette Salamon*, 1: 204, 210, and 213.

²⁶ Goncourt, *Manette Salamon*, 2: 118-9. The Decamps was no. 2887 in the painting section of the 1855 Exposition Universelle.

²⁷ Ibid., 294-5; cited in Buisine, 'L'impossible couleur', 134 and Armstrong, *Manet Manette*, 60.

²⁸ Roux, *La Proie et l'ombre*, 130-1.

²⁹ Ibid., 141. Cézanne would appear at the Nouvelle Athènes wearing a 'white canvas jacket covered over with colours from his brushes and other instruments'; see Auriant, "Duranty et Zola," *La Nef*, vol. 3, no. 20 (July 1946): 43-58, esp. 50-51.

³⁰ Roux, *La Proie et l'ombre*, 148 (my translation). See also Paul Gachet, *Deux amis impressionnistes: Le Docteur Gachet et Murer* (Paris: Editions des musées nationaux, 1956), 57-8, which describes how *A Modern Olympia* of 1873-4 only survived at all because Dr Gachet removed it from the easel to prevent Cézanne from 'destroying it through trying to push it' too far.

³¹ Roux, *La Proie et l'ombre*, 148. On the Impressionists' use of yellow and red pigments made from chrome, coal tar, and cadmium in the 1870s, see Anthea Callen, *The Art of Impressionism: Painting Technique and the Making of Modernity* (New Haven and London: Yale University Press, 2000), 147–48.

³² Roux, *La Proie et l'ombre*, 150.

³³ *Ibid.*, 189.

³⁴ If this work seems unlike more familiar early Cézannes, this is maybe because the artist made a bonfire of much of his early work in 1899 when the family home, the Jas de Bouffan, was sold; see Georges Charensol, 'Aix et Cézanne', *L'Art vivant*, vol. 1, no. 23 (1 December 1925), 8 and 'La vie de Paul Cézanne à Aix-en-Provence racontée par un de ses amis de jeunesse', *L'Intransigeant*, 31 January 1939, 2; Alex Danchev, *Cézanne: A Life* (London: Profile Books, 2012), 37 and 387; and Ratcliffe, *Cézanne's Working Methods*, 404 and 426.

³⁵ See Gasquet, *Cézanne*, 62, which describes how the aging Cézanne 'scraped or slashed' his unfinished sketches with a 'knife' for fear they would be sold for profit.

³⁶ Louis-Edmond Duranty, 'Le peintre Marsabiel', *La Rue*, no. 8, (20 July 1867): 4-6. On paint and materials in this text, see Yve-Alain Bois, *Painting as Model* (Cambridge, Massachusetts: MIT, 1990), 37-8.

³⁷ Duranty (1867), 4. The copy Duranty sent Roux of his anthology, *Les Séductions du chevalier Navoni* (Paris: Dentu, 1877), which contains a revised version of the Marsabiel story, is in the possession of the present author.

³⁸ Cézanne, *Correspondance*, 177. The artist subsequently used a similar phrase in letters of January and December 1904, and January and 'Friday' 1905; see *ibid.*, 298, 308, 306, and 313.

³⁹ Ernst Brücke, *Des couleurs au point de vue physique, physiologique, artistique et industrielles* (Paris: Baillière, 1865), 192–99, esp. 195.

⁴⁰ Charles Landon, *Précis historique des productions des arts, peinture, sculpture, architecture et gravure* (Paris: Didot, 1801), 105. Here the author also argues that red 'neither advances nor retires'.

⁴¹ David Katz, *The World of Colour* (London: Kegan Paul, Trench, Trubner, 1935), 69 and 108.

⁴² For the use of this technique in this painting, see Charlotte Hale, 'A Template for Experimentation: Cézanne's Process and the Paintings of Hortense Fiquet', in Dita Amory et al., *Madame Cézanne* (New York: Metropolitan Museum of Art and Yale University Press, 2014), 45-86, esp. 58. See also Reissner, 'Ways of Making', 26.

⁴³ See Ratcliffe, *Cézanne's Working Methods*, 85 for Cézanne's less successful use of similar touches in the *Self-Portrait* of c. 1862-4 he made after a photograph.

⁴⁴ Cézanne, *Correspondance*, 147.

⁴⁵ Blanc, *Grammaire des arts du dessin*, 581. For similar definitions, see Anon., *Traité de la peinture en miniature Pour apprendre aisément à Peindre sans Maître* (The Hague: Van Dole, 1708), 267; Claude-Henri Watelet, *Dictionnaire des arts de peinture, sculpture et gravure* (Paris: Prault, 1792), vol. 5, 778; Jacques-Nicolas Paillot de Montabert, *Traité complet de la peinture* (Paris: Delion, 1829), vol. 7, 7; and Eugène Chevreul, *De la loi du contraste simultanée des couleurs*, 2 vols (Paris: Pitois-Levrault, 1839), 1: 84.

⁴⁶ Bracquemond, *Du Dessin et de la couleur*, 42.

⁴⁷ Vollard, *Paul Cézanne*, 95.

⁴⁸ See Léo Languier, *Le Dimanche avec Cézanne* (Paris: L'Edition, 1925), 136. See also Rivière and Schnerb, 'L'atelier de Cézanne', 88, which reports Cézanne's statement '*I am not one for values*', and explains how instead 'Cézanne ... modelled more with colour than value' because 'For him, oppositions of light and dark' should be expressed as 'oppositions of *tons*'.

⁴⁹ Cézanne, *Correspondance*, 150.

⁵⁰ See, for instance, the remarks by Doran in *Conversations avec Cézanne*, 234, n. 20, citing Bracquemond, *Du Dessin et de la couleur*, 42: 'the greater the significance the [colour] patch assumes, the more the modelling dissipates'.

⁵¹ See Emile Bernard, 'Paul Cézanne', *L'Occident*, no. 32 (July 1904): 17-30, esp. 23-4. See also Paul Smith, 'Cézanne's Colour Lab: not-so-still life', in *The World is an Apple: The Still Lifes of Paul Cézanne*, ed. Benedict Leca (Hamilton, Ontario and Giles, London: Art Gallery of Hamilton), 92-144, esp. 120-23.

⁵² Bernard, 'Paul Cézanne', esp. 24. For an almost identical statement, see Languier, *Le Dimanche avec Cézanne*, 136.

⁵³ *Conversations avec Cézanne*, 88.

⁵⁴ Ibid., 89.

⁵⁵ Bernard, 'Paul Cézanne', 24.

⁵⁶ Larguier, *Le Dimanche avec Cézanne*, 136.

⁵⁷ See *Correspondance de Camille Pissarro 1865-1885*, vol. 1, 79; cited in Rachel Ziady DeLue, 'Pissarro, Landscape, Vision, and Tradition', *The Art Bulletin*, vol. 80, no. 4 (December 1998), 718-36, esp. 719.

⁵⁸ Armand Silvestre, 'L'école de peinture contemporaine', *La Renaissance*, September 28, 1872, 178-79; cited in DeLue, 'Pissarro, Landscape, Vision, and Tradition', 719.

⁵⁹ Georges Riviere, 'L'exposition des impressionnistes', *L'Impressionniste*, (14 April 1877): 1-4 and 6; cited in DeLue, 'Pissarro, Landscape, Vision, and Tradition', 719 and in *The New Painting: Impressionism 1874-1885: Documentation*, vol. 1, ed. Ruth Berson 181-4, esp. 183.

⁶⁰ See Berson, *The New Painting*, 40, 140, 182, 186, and 239. On Pissarro's status as a 'theorist', see Jean Renoir, *Renoir* (Paris: Hachette, 1962), 111.

⁶¹ *L'Art de peinture de Charles Alphonse Du Fresnoy*, trans. anon. [Roger de Piles] (Paris: L'Anglois, 1668), 35-6.

⁶² Ibid., 129-33.

⁶³ For Cézanne's enthusiasm for this work, see Maurice Denis, *Journal*, vol. 1 (Paris: Colombe, 1959), 29 and Gasquet, *Cézanne*, 104.

⁶⁴ *L'Art de peinture*, 85.

⁶⁵ Anon. [Roger de Piles], *Abrégé de la vie des peintres* (Paris: Muguet, 1699), 51.

⁶⁶ **This conception underlies the shift in meaning that the term 'local colour' underwent in Piles's later writings, where it denotes the appearance a colour in the painting assumes in the (local) context of its neighbours, only by grace of which it corresponds to the colour of the object it represents. See Vladimir Kapor, *Local Colour: A Travelling Concept* (Bern: Peter Lang, 36-7.**

⁶⁷ Michel-François Dandré-Bardon, *Traité de peinture suivi d'un essai sur la sculpture*, 2 vols (Paris: Saillon, 1765).

⁶⁸ Ibid., 1: 172-3 and 202.

⁶⁹ Ibid. 183-5.

⁷⁰ Ibid. 174-5.

⁷¹ On Rochenoire and the Salon, see Paul Crapo, 'Courbet, La Rochenoire et les réformes du Salon de 1870', *Bulletin des Amis de Gustave Courbet*, no. 84 (1990), np.

⁷² Julien de la Rochenoire, *La Peinture à l'huile apprise seul avec sept couleurs pour un franc, première partie* (Paris: Martinon and Durandon, 1854), 30.

⁷³ See *ibid.*, 15.

⁷⁴ Julien de la Rochenoire, *La Peinture à l'huile apprise seul avec sept couleurs pour un franc, deuxième partie* (Paris: Martinon and Durandon, 1854), 2-3.

⁷⁵ Rochenoire, *La Peinture à l'huile, première partie*, 35 and *La Peinture à l'huile, deuxième partie*, 1-2; and Julien de la Rochenoire, *Le Pastel appris seul avec sept couleurs pour un franc* (Paris: Martinon and Durandon, 1854), 45-46.

⁷⁶ Rochenoire, *La Peinture à l'huile, première partie*, 47.

⁷⁷ *La Peinture à l'huile, deuxième partie*, 2.

⁷⁸ Rochenoire, *Le Pastel appris seul*, 46.

⁷⁹ *La Peinture à l'huile, deuxième partie*, 6.

⁸⁰ Denis, *Théories, 1890–1910*, 250–51.

⁸¹ Rochenoire, *La Peinture à l'huile, deuxième partie*, 15.

⁸² *Ibid.*, 36.

⁸³ For one pair of paintings of this kind, see Paul Smith, 'Cézanne's "Primitive" Perspective, or the "View from Everywhere"', *The Art Bulletin*, vol. 95 (March 2013), 102-19, esp. 114-15.

⁸⁴ Rochenoire, *La Peinture à l'huile, première partie*, 38.

⁸⁵ *Ibid.*, 36-7 and Rochenoire, *Le Pastel*, 47-49.

⁸⁶ Rochenoire, *La Peinture à l'huile, deuxième partie*, 32.

⁸⁷ Rochenoire, *La Peinture à l'huile, première partie*, 48.

⁸⁸ *Ibid.*, 29.

⁸⁹ See Gasquet, *Cézanne* 90; Hale, 'A Template for Experimentation', 55; Butler, 'An Investigation of the Materials and Technique Used by Paul Cézanne', 79-80; and Reissner, 'Ways of Making', 11-12.

⁹⁰ On the 'remarkable breakthroughs' Cézanne achieved in this work, see Francoise Cachin et al., *Cézanne* (London: Tate Gallery, 1996), 170.

⁹¹ See Paul Smith, "'Real Primitives'; Cézanne, Wittgenstein, and the Nature of Aesthetic Quality', in *Value, Art, Politics*, ed. J. Harris (Liverpool: Liverpool University Press, 2007), 93-122, esp. 95.

⁹² *Paul Cézanne, Correspondance*, 308.

⁹³ Rainer Maria Rilke, *Letters on Cézanne*, trans. Joel Agee (New York: York Point Press, 2002), 70-71. An X-ray fluorescence test conducted On 16 August 2018 by Michele Derrick, Schorr Family Associate Research Scientist at the Museum of Fine Art, Boston, at the request of Conservator, Irene Konefal, revealed that Cézanne made extensive use of mercury-based pigment in the sitter's red dress, and in other parts of the painting where red is present. This strongly implies that the main red pigment Cézanne used was indeed vermilion.

⁹⁴ On the use of red and green to model flesh in this portrait, see Hale, 'A Template for Experimentation', 54, which also describes the build-up of paint in this work; see also Ratcliffe, *Cézanne's Working Methods*, 288-90 for Cézanne's build-up more generally at this period.

⁹⁵ On the effect of apparent luminosity on the relative salience of red and blue, see Katz, *The World of Colour*, 70.

⁹⁶ Colours also appear less saturated the smaller the proportion of the visual they occupy; see K. Xiao et al, 'Investigation of colour size effect for colour appearance assessment', *Color Research and Application*, vol. 36, no. 3 (June 2011), 201-209.

⁹⁷ Rilke, *Letters on Cézanne*, 71.

⁹⁸ *Ibid.*

⁹⁹ *Ibid.*, 72.

¹⁰⁰ See Gustave Geffroy, 197 for an account of how, in his portrait of the author of 1895-6, Cézanne 'only ever laid-in the face', and 'would always say, "We'll leave that for last"'.

¹⁰¹ Cézanne, *Correspondence*, 321.

¹⁰² On 'coloured greys' in Monet's work, see Anthea Callen, *The Art of Impressionism: Painting Technique and the Making of Modernity* (New Haven and London: Yale University Press, 2000) 150-151.

¹⁰³ See Charles Bourgeois, *Mémoire sur les lois que suivent dans leurs combinaisons entre elles, les Couleurs produites par la refraction de la Lumière, ainsi que celles transmises ou réfléchies par les corps dits naturellement colorés* (Paris: Courcier and Treutel et Wurz, 1812), 41-4; and Charles Bourgeois, *Manuel d'optique* (Paris: Bachelier and Guyot, 1821) vol. 1, 82-9. For summaries of these ideas, see Jacques Nicolas Paillot de Montabert, *Traité complet de la peinture* (Paris: Bossange, 1829), vol. 7, 369; and Blanc, *Grammaire des arts du dessin*, 602.

¹⁰⁴ Rilke, *Letters on Cézanne*, 76.

¹⁰⁵ Bernard, 'Souvenirs sur Paul Cézanne', 613.

¹⁰⁶ Gasquet, *Cézanne*, 1921, 80.

¹⁰⁷ See John Elderfield et al., *Cézanne Portraits* (London: National Portrait Gallery, 2017), 137 for the suggestion that the motif has this meaning.

¹⁰⁸ Gasquet, *Cézanne*, 102.

¹⁰⁹ Rilke, *Letters on Cézanne*, 71.

¹¹⁰ See Kurdt Badt, *The Art of Cézanne* (Berkeley and Los Angeles: California, 1965), 54-55 on Cézanne's avoidance of 'patches of light colour' for highlights.

¹¹¹ Katz, *The World of Colour*, 33; see also Adrian Stokes, *Colour and Form* (London: Faber & Faber, 1950), 28-9 (on 'verbal colour').

¹¹² See Daniel Wildenstein, *Claude Monet: biographie et catalogue raisonné*, 4 vols. (Paris: Bibliothèque des Arts, 1974-9), 2: 243.

¹¹³ Denis, *Journal*, 29.

¹¹⁴ Rivière and Schnerb, "L'atelier de Cézanne," 88.

¹¹⁵ *L'Art de peinture*, 36.

¹¹⁶ Jean-Désiré Régnier, *De la lumière et de la couleur chez les grands maîtres anciens* (Paris: Renouard, 1865), 29-30. On Cézanne's copy, see Ratcliffe, *Cézanne's Working Methods*, 330-1, which suggests the painter read the book between 1877 and 1885; and Jean de Beucken, *Un Portrait de Cézanne* (Paris: Gallimard, 1955), 304.

¹¹⁷ See Herman von Helmholtz, "L'optique et la peinture," in Ernst Brücke, *Principes scientifiques des beaux-arts: Essais et fragments de théorie; suivis de l'optique et la peinture* (Paris: Baillière, 1878), 168-223, esp. 191, for the view that the artist, cannot provide 'a copy of the object', only 'a translation of his impression into another scale of sensation.' On the

range of intensity ratios we can perceive under different illuminations, see C.L. Hardin, *Colour for Philosophers: Unweaving the Rainbow* (Indianapolis: Hackett, 1988), 25.

¹¹⁸ See Wittgenstein, *Remarks on Colour*, 5e and 36e (I.19 and III.150).

¹¹⁹ John Willats, 'The Third Domain: The Role of Pictorial Images in Picture Perception and Production', *Axiomathes* 13, no. 1 (March 2002): 1–15; and James Cutting, 'Reconceiving Perceptual Space', in *Looking into Pictures: An Interdisciplinary Approach to Pictorial Space*, ed. Heiko Hecht, Robert Schwartz, and Margaret Atherton (Cambridge, MA: MIT Press, 2003), 215–38.

¹²⁰ Ludwig Wittgenstein, *Remarks on Colour* (Berkeley and Los Angeles: University of California, 1978), 27e (III.79).

¹²¹ Perhaps because they succeed in representing the sun as 'self-luminous'; see Ute Leonards et al., 'Cortical distinction between the neural encoding of objects that appear to glow and those that do not', *Cognitive Brain Research*, vol. 24 (2005): 173–6.

¹²² See *Manette Salomon*, 2: 65; Bernard, 'Paul Cézanne', 22; Roux, *La Proie et l'ombre*, 75.